Exhibit Z

AMERICAN NATIONAL STANDARD
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EIA/TIA-553

EIA/TIA STANDARD

Mobile Station - Land Station Compatibility Specification

EIA/TIA-553

SEPTEMBER 1989

ELECTRONIC INDUSTRIES ASSOCIATION
ENGINEERING DEPARTMENT

TELECOMMUNICATIONS INDUSTRY ASSOCIATION

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(From Standards Proposal No. 2114 formulated under the cognizance of the TR-45.1 Subcommittee on Cellular Radio Equipment.)

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MOBILE STATION - LAND STATION COMPATIBILITY SPECIFICATION

Page

Page

2.7 SIGNALING FORMATS X

In the message formats used between the mobile stations and land stations, some bits are marked as reserved (RSVD). Some or all of these reserved bits may be used in the future for additional messages. Therefore, all mobile stations and land stations must set all bits that they are programmed to treat as reserved bits to "0" (zero) in all messages that they transmit. All mobile stations and land stations must ignore the state of all bits that they are programmed to treat as reserved bits in all messages that they receive.

2.7.1 REVERSE CONTROL CHANNEL

The reverse control channel (RECC) is a wideband data stream sent from the mobile station to the land station. This data stream must be generated at a 10 kilobit/second ±1 bit/second rate. Figure 2.7.1-1 depicts the format of the RECC data stream.

DOTTING	WORD SYNC	CODED DCC *	FIRST WORD REPEATED 5 TIMES	SECOND WORD REPEATED 5 TIMES	THIRD WORD REPEATED 5 TIMES	...
30	11	7	240	240	240	

$\underbrace{\text{30 \quad 11 \quad 7}}_{\text{Seizure Precursor}}$

DOTTING = 1010...010
WORD SYNC = 11100010010

* DIGITAL COLOR CODE - Coded per Table 2.7.1-1.

Figure 2.7.1-1. REVERSE CONTROL CHANNEL MESSAGE STREAM (Mobile-to-Land)

All messages begin with the RECC seizure precursor that is composed of a 30-bit dotting sequence (1010...010), an 11-bit word sync sequence (11100010010), and the coded digital color code (DCC). The 7-bit coded DCC is obtained by translating the received DCC according to Table 2.7.1-1.

Table 2.7.1-1. CODED DIGITAL COLOR CODE

Received DCC	7-Bit Coded DCC
00	0000000
01	0011111
10	1100011
11	1111100

Each word contains 48 bits, including parity, and is repeated five times; it is then referred to as a word block. A word is formed by encoding 36 content bits into a (48, 36) BCH code that has a distance of 5, (48, 36; 5). The left-most bit (i.e., earliest in time) shall be designated the most-significant bit. The 36 most-significant bits of the 48-bit field shall be the content bits. The generator polynomial for the code is the same as for the (40, 28; 5) code used on the forward control channel (see 3.7.1).

2.7.1.1 RECC MESSAGES X

Each RECC message can consist of one to five words. The types of messages to be transmitted over the reverse control channel are:

- Page Response Message
- Origination Message
- Order Confirmation Message
- Order Message

These messages are made up of combinations of the following five words:

Word A - Abbreviated Address Word

F = 1	NAWC	T	S	E	RSVD = 0	SCM	$MIN1_{23-0}$	P
1	3	1	1	1	1	4	24	12

Word B - Extended Address Word

F = 0	NAWC	LOCAL	ORDQ	ORDER	LT	RSVD = 000...0	$MIN2_{33-24}$	P
1	3	5	3	5	1	8	10	12

Word C - Serial Number Word

F = 0	NAWC	SERIAL	P
1	3	32	12

Word D - First Word of the Called-Address

F = 0	NAWC	1st DIGIT	2nd DIGIT	...	...	...	...	7th DIGIT	8th DIGIT	P
1	3	4	4	4	4	4	4	4	4	12

Word E - Second Word of the Called-Address

F = 0	NAWC = 000	9th DIGIT	10th DIGIT	...	...	...	...	15th DIGIT	16th DIGIT	P
1	3	4	4	4	4	4	4	4	4	12

The interpretation of the data fields is as follows:

F — First word indication field. Set to '1' in first word and '0' in subsequent words.

NAWC — Number of additional words coming field.

T — T field. Set to '1' to identify the message as an origination or an order; set to '0' to identify the message as an order response or page response.

S — Send serial number field. If the serial number word is sent, set to '1'; if the serial number word is not sent, set to '0'.

E — Extended address field. If the extended address word is sent, set to '1'; if the extended address word is not sent, set to '0'.

SCM — The station class mark field (see 2.3.3).

ORDER — Order field. Identifies the order type (See Table 3.7.1-1).

ORDQ — Order qualifier field. Qualifies the order confirmation to a specific action

(See Table 3.7.1-1).

LOCAL — Local control field. This field is specific to each system. The ORDER field must be set to local control (see Table 3.7.1-1) for this field to be interpreted.

LT — Last-try code field (see **2.6.3.8**).

MIN1 — First part of the mobile identification number field (see **2.3.1**).

MIN2 — Second part of the mobile identification number field (see **2.3.1**).

SERIAL — Serial number field. Identifies the serial number of the mobile station (see **2.3.2**).

DIGIT — Digit field (see Table 2.7.1-2).

RSVD — Reserved for future use; all bits must be set as indicated.

P — Parity field.

Examples of encoding called-address information into the called-address words are given below:

I. If the number 2# is entered, the word is:

NOTE	0010	1100	0000	0000	0000	0000	0000	0000	P
4	4	4	4	4	4	4	4	4	12

II. If the number 13792640 is entered, the word is:

NOTE	0001	0011	0111	1001	0010	0110	0100	1010	P
4	4	4	4	4	4	4	4	4	12

III. If the number *24273258 is entered, the words are:

Word D - First Word of the Called-Address

NOTE	1011	0010	0100	0010	0111	0011	0010	0101	P
4	4	4	4	4	4	4	4	4	12

Word E - Second Word of the Called-Address

NOTE	1000	0000	0000	0000	0000	0000	0000	0000	P
4	4	4	4	4	4	4	4	4	12

NOTE: These four bits depend on the type of message.

Table 2.7.1-2. DIGIT CODE

Digit	Code	Digit	Code
1	0001	7	0111
2	0010	8	1000
3	0011	9	1001
4	0100	0	1010
5	0101	*	1011
6	0110	#	1100
		Null	0000

NOTES:
1) The digit 0 is encoded as binary "ten"; not binary "zero."
2) The code 0000 is the null code, indicating no digit present.
3) All other four-bit sequences are reserved, and must not be transmitted.

2.7.2 REVERSE VOICE CHANNEL

The reverse voice channel (RVC) is a wideband data stream sent from the mobile station to the land station. This data stream must be generated at a 10 kilobit/second ±1 bit/second rate. Figure 2.7.2-1 depicts the format of the RVC data stream.

DOTTING	W.S.	REPEAT 1 OF WORD 1	DOT.	W.S.	REPEAT 2 OF WORD 1
101	11	48	37	11	48

DOT.	W.S.	REPEAT 3 OF WORD 1	DOT.	W.S.	REPEAT 4 OF WORD 1	DOT.	W.S.	REPEAT 5 OF WORD 1
37	11	48	37	11	48	37	11	48

DOT.	W.S.	REPEAT 1 OF WORD 2	...	...	REPEAT 5 OF WORD 2
37	11	48			48

DOTTING = 1010....101
W.S. (WORD SYNC) = 11100010010

Figure 2.7.2-1. REVERSE VOICE CHANNEL MESSAGE STREAM (Mobile-to-Land)

A 37-bit dotting sequence (1010....101) and an 11-bit word sync sequence (11100010010) are sent to permit land stations to achieve synchronization with the incoming data, except at the first repeat of word 1 of the message where a 101-bit dotting sequence is used. Each word contains 48 bits, including parity, and is repeated five times together with the 37-bit dotting and 11-bit word sync sequences; it is then referred to as a word block. For a multi-word message, the second word block is formed the same as the first word block including the 37-bit dotting and 11-bit word sync sequences. A word is formed by encoding the 36 content bits into a (48, 36) BCH code that has a distance of 5, (48, 36; 5). The left-most bit (i.e., earliest in time) shall be designated the most-significant bit. The 36 most-significant bits of the 48-bit field shall be the content bits. The generator polynomial for the code is the same as for the (40, 28; 5) code used on the forward control channel (see **3.7.1**).

2.7.2.1 RVC MESSAGES X

Each RVC message can consist of one or two words. The types of messages to be transmitted over the reverse voice channel are:

- Order Confirmation Message
- Called-Address Message.

The message formats are as follows:

Order Confirmation Message

F = 1	NAWC = 00	T = 1	LOCAL	ORDQ	ORDER	RSVD = 000...0	P
1	2	1	5	3	5	19	12

Called-Address Message:
Word 1 - First Word of the Called-Address

F = 1	NAWC = 01	T = 0	1st DIGIT	2nd DIGIT	...	...	...	...	7th DIGIT	8th DIGIT	P
1	2	1	4	4	4	4	4	4	4	4	12

Word 2 - Second Word of the Called-Address

F = 0	NAWC = 00	T = 0	9th DIGIT	10th DIGIT	...	...	...	...	15th DIGIT	16th DIGIT	P
1	2	1	4	4	4	4	4	4	4	4	12

The interpretation of the data fields is as follows:

F — First word indication field. Set to '1' in first word and '0' in second word.

NAWC — Number of additional words coming field.

T — T field. Set to '1' to identify the message as an order confirmation. Set to '0' to identify the message as a called-address.

DIGIT — Digit field (see Table 2.7.1-2).

ORDER — Order field. Identifies the order type (see Table 3.7.1-1).

ORDQ — Order qualifier field. Qualifies the order confirmation to a specific action (See Table 3.7.1-1).

LOCAL — Local Control field. This field is specific to each system. The ORDER field must be set to local control (see Table 3.7.1-1) for this field to be interpreted.

RSVD — Reserved for future use; all bits must be set as indicated.

P — Parity field.

Exhibit AA

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

TruePosition, Inc. Plaintiff/ Counterclaim-Defendant,	)	
vs.	)	Civil Action No. 05-00747-SLR
Andrew Corporation, Defendant/ Counterclaim-Plaintiff.	)	

October 4, 2006

The deposition of JOHN C. WEBBER, taken at the instance of the Defendant, before Carolyn M. O'Connor, RMR, CRR, CCR, a Notary Public for the Commonwealth of Virginia at Large, beginning at 9:04 a.m., at the Marriott Courtyard, 1201 West Main Street, Charlottesville, Virginia; said deposition taken pursuant to the Federal Rules of Civil Procedure.

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A 242

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TPI0044595, which should be just the United States patent number 5,327,144.

Thank you, counsel.

Q Dr. Webber, have you seen this document before?

A I have seen this patent document before, yes.

Q When is the last time you saw it?

A The last time I saw a copy of this document was a few months ago when I was contacted by Woodcock Washburn in connection with this case, at which time I pulled it out and looked at it.

Q Now, Dr. Webber, I understood you to say just now that control channels are always digital. Is that a fair --

A I would assume that they are always digital, but I have -- this is -- basically because I think all the new systems are all digital.

Q All of the new systems. So you are drawing a distinction between old systems and new systems when you say that control channels are always digital?

A I'm not drawing a distinction. I'm saying they are all similar in using modulated signals to transmit information digitally.

Q Can I ask you to please turn to, let's see, about a third of way into the patent, Column 1, past the figures, Column 1.
A Yes.
Q About a third of the way down the page next to the -- to the left of Line 30, so it would be Column 1, starting at approximately Line 27 --
A Yes.
Q -- it says, "In addition, it should be noted that the inventive concepts disclosed herein are applicable to both analog and digital, paren, for example, TDMA, cellular systems that employ analog control channels."
A Yes.
Q What is an analog control channel?
A I believe what we meant here is it is the control channel associated with the analog cell telephone system.
MS. WALDRON: Could you please read the answer back for me.

(Court reporter reads back previous answer.)

Q Dr. Webber, getting back to the GSM standard, do you know whether or not all channels in

GSM are digital?

A No, I don't.

Q Dr. Webber, are you aware that the GSM standard distinguishes between physical and logical channels?

A No, I'm not.

Q Dr. Webber, if asked, could you draw a frame structure for GSM?

A I could not.

Q Dr. Webber, is it safe to say that you do not consider yourself an expert in GSM?

A Yes, that's correct. I believe I already said that.

Q I apologize.

Dr. Webber, are you familiar with the acronym CDMA?

A Yes, it means Code Division Multiple Access.

Q How -- what is the basis for your understanding of what CDMA is?

A The basis of my understanding is primarily my understanding of how the Global Positioning System works, in which multiple satellites all transmit digital signals within the same band, and they are distinguished -- even though

proof of concept demonstration. My chief area of contribution was in the -- the description of the overall system, in managing the project, organizing the work and assigning it to different people and seeing to it that everything actually got done in the end. I also did some direct engineering work in the area of providing accurate clock and oscillator references at the receiving sites.

Q Dr. Webber, you mentioned it was difficult to separate your contribution from Dr. Knight's, but you didn't mention Mr. Stilp. Is Mr. Stilp's work more easily separated from that of you and Dr. Knight?

A Yes.

Q What would you say Mr. Stilp's contribution to the 144 patent was?

A His contribution was in the understanding of the technical details and system organization of the cell telephone networks, as he provided to us the technical information about frequencies of control channels, our communications protocols and similar technical information, and he placed our ability to make measurements within the context of the overall operation of the cell telephone system and the organization of data and the transmission of

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data between cell telephone tower equipment and central sites, the registration of telephone numbers and how the overall database system worked in order to provide the information that identifies a particular transmission so that we could connect the measurement of a position with the particular transmitter that produced the signal.

Q What do you mean connect -- I'm sorry if I'm misquoting you. I think I just heard you to say connect the information of the transmitter with a particular --

A Yes.

Q -- location?

A You want me to explain that?

Q Well, first, did I hear you correctly? Did you say connect a transmitter to a specific location?

A No, correct the identifying information of the transmitter to the position determined for that -- for a transmission from that transmitter.

Q Yes, if you could please explain what you mean by connect the identification --

A Okay.

Q -- information.

A In this system described in this patent,

the nature of the signal being analyzed is irrelevant to the process of determining a position. It is possible to determine the position using analog modulated voice channels, digital modulated information channels, digitally modulated voice channels, whatever signal you have, from the point of view of the technique of radio interferometry, as described in the patent. It's noise. It's just a particular pattern of electromagnetic radiation, and it is irrelevant to the process of determining location, whether it contains information or voice modulation or is background noise and static or whatever. The system works the same on any transmission that it receives.

So it is possible to determine for any signal that enters the cell telephone system, for example, from a rogue transmitter illegally transitting within the band received by the equipment, to determine the position of that transmission. However, in order for this information to be useful, it's necessary to know for the signals which are located what transmitter it is associated with, in particular in this case, with which particular telephone a particular detected transmission is associated. In order to make that

determination, it's necessary to -- well, the most convenient way to do that is to decode the telephone number or other identifying information within the transmission.

And so the contribution of Lou Stilp to making a system which obtained the objective of identifying the position of a particular telephone must involve not only measuring the position of a particular transmission, but associating it with that particular telephone.

Q You're saying you need to figure out the specific identification of any particular phone?

A Right. Otherwise, the information isn't useful. I can show you from the data stream -- from three cell telephone towers where and when every cell telephone within that -- the area serviced by those towers is located and what it's doing at any particular time all simultaneously, but unless I had information about the identification associated with a particular signal, namely the telephone number, the registration number, whatever, I can't tell you which one of those is the one that you want.

Q And with regard to figuring out the identification of the cell phone, do I understand you correctly that that was something that fell

under Mr. Stilp's contribution?

A Yes, providing the information about the nature of the transmissions, the coding used for the transmissions and the way the information is transmitted around the cell telephone networks was essential to making a system which not only determines the location of all the transmitters but associates each one of them with a particular cell telephone.

MS. WALDRON: Why don't we go ahead and just change the tape now.

THE VIDEOGRAPHER: We are off the record at approximately ten a.m.

MS. WALDRON: Thank you.

(Off the record.)

THE VIDEOGRAPHER: We are on the record at approximately 10:01 a.m. Counsel, you may resume.

EXAMINATION BY MS. WALDRON: (Cont'g)

Q Dr. Webber, you mentioned previously, if I understood you correctly, that you felt that your work on the invention embodied in the 144 patent was

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operates, it identifies one as being the strongest tower available to it, and then it -- it chooses, on that basis, the particular digital control channel and transmits to the cell telephone tower or it broadcasts omnidirectionally -- it's picked up at many cell phone towers -- its own identifying information.

That tower then registers that telephone as being within range of that tower, and that information is transmitted to the entire cell telephone system throughout the country, so that a telephone from Los Angeles, when turned on in Virginia, will get identified and within a very short time registered as being close to this particular cell telephone tower in Virginia and being a legitimate number, so that if someone calls that number, which ordinarily would go to the Los Angeles area code, the system database maintained nationally identifies, Oh, this guy's in Virginia, so I'm going to call him from that tower right there.

So that's the process of registration, and that includes both the number and unique machine-identifying code that's unique to each piece of equipment that enables the system to determine

that this is a legitimate and not a highjacked code of some sort.

Q Dr. Webber, I think in your last answer you used the phrase digital control channel. Can you explain to me what about -- what is it that makes a control channel digital, as you're referring to it?

A The information in the particular frequency band assigned to one particular digital control channel, that information is transmitted as an -- it's actually an analog signal, but the analog signal is modulated in such a way as to make it possible to demodulate it and determine a sequence of numbers that was originally encoded before the transmission was made. Excuse me.

Q Sure. Would you like more water?

Dr. Webber, if I understood you correctly, you also mentioned selection of one of several control channels. Did I understand you correctly?

A Yes.

Q What -- what set of control channels are you talking about?

A The control channels I'm talking about in particular in this -- in the implementation we did

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in 1992 is the set of 21 frequencies -- actually, frequency bands -- within a given region of the spectrum around 900 megahertz, which were assigned to the function of being the control channels by which digital information is transmitted from the cell telephone to a tower and from a tower back to the telephone.

MS. WALDRON: Sorry, could you read that back to me.

(Court reporter reads back previous answer.)

MS. WALDRON: Thank you.

Q Dr. Webber, getting back to the contribution made by you and Dr. Knight, you mentioned that you had worked on concepts and equipment, and we talked about the concepts being direction finding and time of arrival. Can you tell me about what equipment you and Dr. Knight worked to develop in support of the project that became the 144 patent.

A Yes, the equipment required is, first, a means of connecting to the cell telephone receiving antennas in order to receive the signals that are at issue and then processing those signals in the

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analog domain and then in the digital domain in order to provide signals that are suitable for cross-correlation in order to determine the relative time of arrival of the signals; and that consisted of a -- radio frequency equipment attached to the antenna system of a cell telephone tower, which, using a local oscillator and standard heterodyne techniques, converted the received relevant part of the spectrum down to frequencies close to zero frequency and extending above that to the extent of frequency characteristic of those signals, and I believe that was on the order of a hundred kilohertz or so frequency spectrum.

Following that step of filtering the signal in order to observe only the 21 channels of digital information, that signal was converted to digital in an analog -- using an analog-to-digital converter and then transmitted by a custom-designed board over a T1 -- standard T1 carrier from the cell telephone tower to a chosen central site.

So the equipment consisted of means of attaching to the cell telephone antenna receiving system, down-converting the received signal for only the digital control channels to a lower frequency, and then using an analog-to-digital converter to

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A The integral is, in effect, a summation. In principle what one would do is take the two described functions and represent them analytically as, for example, polynomials or exponentials or some integrable function --

THE COURT REPORTER: Inter --

THE WITNESS: Integrable, I-N-T-E-G-R-A-B-L-E function.

A -- and multiply the two with an infinitesimal time difference, dt. For example, the integral of XDX is X squared divided by two.

Q So something just occurred to me. We were talking about -- you mentioned that correlation function -- we use the term loosely -- can either mean the actual process or the results of some -- yes, or the results. Can you take a look at Column 5 right at Line 20.

A Uh-huh.

Q It says "The central site system comprises means for processing the frames of data from the cell site systems to generate a table identifying individual cellular telephone signals," and then it goes on.

A Uh-huh.

Q That table, is that generated from the

results of the correlation function?

A No.

Q No. What is that table?

A That table identifying the cell telephone signals is a table which identifies those -- essentially, the telephone numbers that have been decoded from the individual data streams. That has nothing to do with the cross-correlation process. This is for convenience.

Q That's the stuff that goes into the identifying database?

A Right. So you pop out a time, a telephone number and a time difference of arrival for that particular pair of antennas, and the decoding of that signal is done independently for each data stream and separately from the cross-correlation process.

Q Dr. Webber, is a correlation function the same thing as an ambiguity function?

MR. MILCETIC: Objection.

You can answer it.

A I think I have heard it referred to as an ambiguity function, but it's not -- at least in my field, it's not a term that's commonly used.

Q Ambiguity function is not a term

that's --

A No.

Q If I asked you -- so is it fair to say that you cannot definitively state one way or the other whether an ambiguity function is the same thing as a correlation function?

MR. MILCETIC: Objection.

You can answer.

A I believe that in some contexts, what I'm calling a correlation function is referred to as an ambiguity function.

Q In what contexts are you referring to?

A In -- I seem to remember something -- I'm not an expert in this particular area, but I believe in digital data processing, it's a term which is sometimes used to mean the same thing as what I mean by correlation function, but I'm not an expert in that particular area.

Q Which particular area?

A The area of digital signal communications. To me these signals are being processed as if they were noise. The only content that's being extracted is the telephone number, which is easily decoded from the input data stream. As far as the rest of the process is concerned, I

Exhibit BB

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A 258

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continuous A word used in voice recognition to mean a type of recognition that requires no pause between utterances.

continuous DTMF This is a feature of some phones (especially cellular phones) that sends touchtone sounds for as long as the key is held down, allowing access to services such as voice mail and answering machines that need long-duration tones. Some phones automatically have continuous DTMF; some don't. It's worth checking. Continuous DTMF makes a lot more sense.

continuous information environment A term for the world we live in—in which information (text, voice, video, images, etc.) is flowing at us continuously. And our job is, somehow, to manage the information. The idea is to use the new computer telephony terms to manage the information.

continuous phase modulation CPM. An efficient means of modulation for purposes of digital transmission over a radio system, such as microwave. CPM modulates the signal by changing its phase, or position, much as does Phase Shift Keying (PSK) in modems. CPM is a memory-dependent technique which requires that the receiving device compare the value of the starting phase of the transmitted signal to the value of the ending phase of the previously transmitted signal. Thereby, the value of the transmitted symbols can be determined, as long as the transmitter and receiver are carefully synchronized and the bit intervals, therefore, are consistent in time. Each value can represent one or more bits, depending on whether a compression technique is used to improve the efficiency of data transmission. See also PSK.

continuous vulcanization Simultaneous extrusion and curing of elastomeric wire coating materials. wire or cable can withstand prior to breakdown.

continuous waves CW. A series of electromagnetic waves or cycles, all of which have a constant or unvarying amplitude. Continuous wave usually refers to the output of a device (e.g., an optical fiber laser) which is turned on, but which is not modulated with a signal.

continuously variable Capable of having one of an infinite number of values, differing from each other by an arbitrarily small amount. Usually used to describe analog signals or analog transmission.

contract For the purpose of developing applications in the telecommunications industry, there are two types of contracts: Active and Passive. An active contract is one you must sign. A passive contract is the type of contract you find in a software package. By opening the shrink wrapped package, you are committing yourself to the terms of the contract inside the package—the terms of which mostly consist of not duplicating the software in an unauthorized way.

control In switching systems, the overall control of the switches. This includes monitoring to determine when action is needed, logic to determine what action is needed, and command, to initiate the actions.

control cable A multiconductor cable made for operation in control or signal circuits.

control channel A control channel is a logic channel carrying network information rather than actual voice or data messages. Within a cellular telephone system, several of the channels are assigned as 'control' channels. Instead of supporting voice communications, these channels allow the base station to broadcast information to the cellular phones in its area. Cellular phones continuously monitor this broadcast information, selecting the base station that provides the best signal.

control character A non-printing ASCII character which controls the flow of communications or a device. Control characters are entered from computer terminal keyboards by holding down the Control key (marked CTRL on most keyboards) while the letter is pressed. To ring a bell at a remote telex terminal, an operator could hold down the CTRL key, and tap the "G" key, since Control-G is the BELL character. Most computers display Control as the "^" character in front of the designated letter. For example, ^M is the Carriage Return character.

control circuit X.21 interface circuit used to send control information from DTE to DCE.

control connections A Control VCC links the LEC to the LECS. Control VCCs also link the LEC to the LES and carry LE_ARP traffic and control frames. The control VCCs never carry data frames.

control equipment 1. The central "brains" of a telephone system. That part which controls the signaling and switching to the attached telephones. Known as the KSU (or key service unit) in a key system.

2. Equipment used to transmit orders from an alarm center to remote site to enable you to do things by remote control.

control field Field in frame containing control information.

control flag A cellular phone term. A 6-bit flag transmitted in the forward channel data stream, comprised of a 5-bit busy/idle flag and one bit of the 5-bit decode status flag.

control head roam lights Indicates that the cellular phone is outside the "home" system.

control messages Signalling messages that provide the control of setup, maintenance, and teardown of L2TP sessions and tunnels. See L2TP.

control of electromagnetic radiation 1. Measures taken to minimize electromagnetic radiation emanating from a system or component, or to minimize electromagnetic interference. Such measures are taken for purposes of security and/or the reduction of interference, especially on ships and aircraft.

2. A national operational plan to minimize the use of electromagnetic radiation in the United States and its possessions and the Panama Canal Zone in the event of attack or imminent threat thereof, as an aid to the navigation of hostile aircraft, guided missiles, or other devices.

control of flow language Programming-like constructs (IF, ELSE, WHILE, GOTO, and so on) provided by Transact-SQL so that the user can control the flow of execution of SQL Server queries, stored procedures, and triggers. This definition from Microsoft SQL server.

control panel The control panel on the Apple Macintosh is for general hardware and software settings. Icons allow a user to customize the system or application, or select a particular service, such as a specific printer, set the sound level, the date and time and choose an Ethernet connection through the network control panel.

control plane The ATM protocol includes a Control Plane which addresses all aspects of network signaling and control, through all 4 layers of the model.

Control Point CP. In IBM SNA (Systems Network Architecture) networks, a Control Point is a type of NAU (Network Accessible Unit, previously known as Network Addressable Unit). A CP manages the network resources within its domain of control, controlling the activation and deactivation of resources and the monitoring of their status. Such resources can include physical resources such as links and nodes, and logical resources such as network addresses. As a Network Accessible Unit, a Control Point is accessible over the SNA network itself. See also SNA.

control segment A worldwide network of Global Positioning System monitoring and control installations that ensure the accuracy of satellite positions and their clocks.

control signal 1. In the public network, control signals are used for auxiliary functions in both customer loop signaling and interoffice trunk signaling. Control signals used in the customer loop for Coin Collect and Coin Return and Party Identification. Control signals used in interoffice trunk signaling include Start Dial (Wink or Delay Dial) signal Keypulse (KP) signals or Start Pulse (ST) signals.

2. In modem communications, control signals are modem interface signals used announce, start, stop or modify a function. Here's a table showing common RS-232-C a ITU-T V.24 control signals

Pin	Control Signal	From	To
4	Request-To-Send (RTS)	DTE	DCE
5	Clear-To-Send (CTS)	DCE	DTE
6	Data Set Ready (DSR)	DCE	DTE
8	Carrier Detect (CD)	DCE	DTE
20	Data Terminal Ready (DTR)	DTE	DCE
22	Ring Indicator (RI)	DCE	DTE

control station On a multi-access link, a station that is in charge of such functi as selection and polling.

control theory The mathematical analysis of the systems and mechanisms achieving a desired state under changing internal and external conditions.

control tier An AT&T term for the tier within the Universal Information Services work node that provides the transport network's connection control function.

control unit An architectural component of a processor chip which orchestr processor activity and handles timing to make sure the processor doesn't overlap functi

controlled access When access to a system is limited to authorized progr processes or other systems (as in a network).

controlled environment vault CEV. It is a low maintenance, w tight concrete or fiberglass container typically buried in the ground which provides manent housing for remote switches, remote line concentrators, pair gain and transmission systems. Because it is buried, it can often be installed in utility easen

A 260

Exhibit CC

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

TruePosition, Inc.,	)	
	)	
Plaintiff/	)	
Counterclaim-Defendant,	)	
	)	**Civil Action No. 05-747-SLR**
v.	)	
	)	
Andrew Corporation,	)	**CONFIDENTIAL**
	)	
Defendant/	)	
Counterclaim-Plaintiff.	)	
	)	

TRUEPOSITION'S IDENTIFICATION OF CLAIM TERMS AND PROPOSED CONSTRUCTIONS

Pursuant to paragraph 5 of the court's Scheduling Order (D.I. 23), and the parties' October 13, 2006 (D.I. 94), TruePosition sets forth below those claim terms and phrases of the 144 Patent that it believes require construction, as well as TruePosition's proposed constructions of those terms.

144 Patent Claim Term or Phrase	Proposed Construction
"**means** for processing said frames of data from said cell site systems to generate a table identifying individual cellular telephone signals and the differences in times of arrival of said cellular telephone signals among said cell site systems" (Claim 1)	A computer processor programmed to perform the algorithm disclosed at Col. 13, ll. 33-56 (ending with the acronym "TDOA"), Fig. 7 at the First Four Blocks and Table, Col. 17, ll. 26-68 (minus any reference to "frequency difference data" or "frequency difference results") and Figs. 8a-8b (minus any reference to "frequency differences"), or equivalents of such a computer processor. Claim language that is not in bold should be construed according to its ordinary dictionary meaning pursuant to Paragraph 7 of the Court's Scheduling Order (D.I. 23).
"**means** for determining, on the basis of said times of arrival differences, the locations of the	A computer processor programmed to perform the algorithm disclosed at Col. 13, l. 58

A 261

144 Patent Claim Term or Phrase	**Proposed Construction**
cellular telephones responsible for said cellular telephone signals" (Claim 1)	(beginning with the word "This") through Col. 13, l. 62 (ending with the letter "C"), Fig. 7, at the Fifth and Sixth Blocks, Col. 18, ll. 1-34 (ending with "0.0001," but minus any reference to "frequencies") and Fig. 8c through Top Four Elements of Fig. 8d (minus any reference to "frequencies"), or equivalents of such a computer processor. Claim language that is not in bold should be construed according to its ordinary dictionary meaning pursuant to Paragraph 7 of the Court's Scheduling Order (D.I. 23).
"**locating means** for automatically determining the locations of said cellular telephones by receiving and processing signals emitted during said periodic **reverse control channel** transmissions" (Claim 22)	A computer processor programmed to perform the algorithm disclosed at Col. 13, ll. 33-62 (ending with the letter "C"), Figure 7 at the First Six Blocks and Table, Col. 17, l. 26 – Col. 18, l. 34 (ending with "0.0001," but minus any reference to "frequency difference data," "frequency difference results" or "frequencies") and Figs. 8a through the Top Four Elements of Fig. 8d (minus any reference to "frequency differences" or "frequencies"), or equivalents of such a computer processor. Claim language that is not in bold should be construed according to its ordinary dictionary meaning pursuant to Paragraph 7 of the Court's Scheduling Order (D.I. 23).
"**database means** for storing location data identifying the cellular telephones and their respective locations, and for providing access to said database to subscribers at remote locations" (Claim 22)	The combination of the "database 20" and the "first terminal 22 coupled via a modem . . . and telephone line to the database 20" disclosed in Col. 9, ll. 25-27, Fig. 2 Blocks 20, 22, or equivalents such a combination; Or The combination of the "database 20" and the "second terminal 24 in radio communication with the database 20" disclosed in Col. 9, ll. 27-29, Fig. 2, Blocks 20, 24, or equivalents of such a combination; Or

A 262

144 Patent Claim Term or Phrase	Proposed Construction
	The combination of the "database 20" and the "third, handheld terminal 26, which is carried by a user who also has a cellular telephone 10b, in radio communication with the database" disclosed in Column 9, ll. 29-31, Fig. 2, Blocks 20, 26, or equivalents of such a combination. Claim language that is not in bold should be construed according to its ordinary dictionary meaning pursuant to Paragraph 7 of the Court's Scheduling Order (D.I. 23).
"reverse control channel(s)" (Claims 1, 22 and 31)	A control channel(s) from a cellular telephone(s) to a cell site(s).

TruePosition contends that any terms and phrases that it has not identified in asserted claims 1, 2, 22, 31, and 32 should be construed according to their ordinary dictionary meaning pursuant to Paragraph 7 of the Court's Scheduling Order (D.I. 23).

In preparing this list of terms and proposed constructions, TruePosition has relied upon the statement of Andrew's contentions in Andrew Corporation's Supplemental Responses to TruePosition's Interrogatory Nos. 3 and 7 served November 8.

Dated: November 22, 2006

By: */s/ Daniel Goettle*

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

TruePosition, Inc., **Plaintiff/ Counterclaim-Defendant,** **v.** **Andrew Corporation,** **Defendant/ Counterclaim-Plaintiff.**	)	**Civil Action No. 05-747-SLR**

CERTIFICATE OF SERVICE

I, Daniel Goettle, hereby certify that on this 22nd day of November, 2006, I served the foregoing TruePosition's Identification of Claim Terms and Proposed Constructions on counsel for defendant Andrew Corporation as follows:

Via Electronic Mail, Return Receipt Requested

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/s/ Daniel Goettle
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Exhibit DD

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

--------------------------------x

TRUEPOSITION, INC.,	)	
Plaintiff,	)	
v.	)	Civil Action
ANDREW CORPORATION,	)	No. 05-747
Defendant.	)	

--------------------------------x

Videotaped Deposition of

JOHN P. CARLSON

Washington, D.C.

Monday, October 2, 2006

9:04 a.m.

Job No.: 22-87717

Pages 1 - 228

Reported By: Joan V. Cain

Virginia CCR No. 0315117

A 266

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JOHN. P. CARLSON

Q Is there a control channel in TDMA?
A That doesn't make sense to me.
Q Is TDMA an air interface?
A No, it's not.
Q Have you ever heard the phrase "CDMA"?
A Yes.
Q What is CDMA?
A Code division multiple access.
Q Is there a control channel in CDMA?
A That doesn't make sense to me either.
Q Okay. It's not your understanding that every air interface has some type of control channel associated with it?
A I can say that every air interface that I'm familiar with has a mechanism to send control information between a base station and a handset.
Q But not necessarily a control channel?
A Correct.
Q What about in AMPS, is there a control channel?
A I believe there is.
Q Apart from AMPS, is there a control channel in any other air interface?
A I don't know. I'm not sure.

JOHN. P. CARLSON

09:37:39 Q Is there any control channel in GSM?

09:37:59 A In the GSM standard, there is a way to send control information between a base station and a handset.

09:38:05 Q And what is that?

09:38:15 A The broadcast control channel is a way for the base station to send control-related information to handsets.

09:38:28 Q How about between the handset and the base station?

09:38:40 A There's an access grant channel, there is a stand-alone dedicated control channel, and there is a slow associated control channel.

09:39:04 Q Could you turn back to -- actually, let me step back.

09:39:12 Have you participated in any efforts to add the ability to locate on a stand-alone dedicated control channel to the Geometrix product?

09:39:30 A Yes.

09:39:31 Q What were those efforts?

09:39:43 A I was involved in the systems engineering design of how Geometrix could acquire SDCCH, which happens to be a shared channel that can send control information and traffic information.

A 268

JOHN. P. CARLSON

So I wouldn't say that from that standpoint it's exclusively a control channel.

Q What prompted Andrew to start working on locating a mobile transmitting on a stand-alone dedicated control channel?

A Could we go back to questions when I said "yes"?

Q Yeah.

A Could you read that one again?

MR. MILCETIC: Read that question back.

MR. PARKS: And the answer too, right?

(The reporter read the record as requested.)

A Thanks.

BY MR. MILCETIC:

Q What prompted Andrew to start working on the ability to locate on a stand-alone dedicated control channel?

A We had a contract that was awarded to us for this work.

Q What contract?

A I'm not comfortable answering that question.

Q Is it classified?

A 269

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JOHN. P. CARLSON

09:42:26 A I can't confirm or deny that.

09:42:31 Q Well, if it is classified, how would you

09:42:34 know one way or the other?

09:42:42 A Because I have a security clearance and I'm

09:42:45 privy to some classified information.

09:42:51 MR. PARKS: Just so we're clear on the

09:42:52 record. If the work is classified, you can say it's

09:42:56 classified. You just can't go into any details

09:42:59 about what the work is or on whose behalf it's being

09:43:04 done, that type of thing, but you can answer whether

09:43:06 it's classified or not.

09:43:15 BY MR. MILCETIC:

09:43:15 Q Are you comfortable talking about what

09:43:17 agency may have classified it?

09:43:19 A No.

09:43:37 Q Are you comfortable talking about anything

09:43:39 that would explain to me how this contract became

09:43:52 classified --

09:43:56 A No.

09:43:56 Q -- or why it's classified?

09:43:59 A No.

09:44:03 Q So, you're not going to talk about that,

09:44:05 right?

09:44:06 A About what?

A 270

Exhibit EE

We claim:

1. A cellular telephone location system for determining the locations of multiple mobile cellular telephones each initiating periodic signal transmissions over one of a prescribed set of control channels, comprising:

(a) at least three cell site systems, each cell site system comprising: an elevated ground-based antenna; a baseband convertor operatively coupled to said antenna for receiving cellular telephone signals transmitted over a control channel by said cellular telephones and providing baseband signals derived from the cellular telephone signals; a timing signal receiver for receiving a timing signal common to all cell sites; and a sampling subsystem operatively coupled to said timing signal receiver and said baseband convertor for sampling said baseband signal at a prescribed sampling frequency and formatting the sampled signal into frames of digital data, each frame comprising a prescribed number of data bits and time stamp bits, said time stamp bits representing the time at which said cellular telephone signals were received; and

(b) a central site system operatively coupled to said cell site systems, comprising: means for processing said frames of data from said cell site systems to generate a table identifying individual cellular telephone signals and the differences in times of arrival of said cellular telephone signals among said cell site systems; and means for determining, on the basis of said times of arrival differences, the locations of the cellular telephones responsible for said cellular telephone signals.

2. A cellular telephone location system as recited in claim 1, wherein said timing signal receiver comprises a global positioning system (GPS) receiver.

3. A cellular telephone location system as recited in claim 1, wherein said central site system comprises a correlator for cross-correlating the data bits of

N
P
N
K

34

22. A ground-based cellular telephone system serving a plurality of subscribers possessing mobile cellular telephones, comprising:

(a) at least three cell sites equipped to receive signals sent by multiple mobile cellular telephones each initiating periodic signal transmissions over one of a prescribed set of control channels;

(b) locating means for automatically determining the locations of said cellular telephones by receiving and processing signals emitted during said periodic control channel transmissions; and

(c) database means for storing location data identifying the cellular telephones and their respective locations, and for providing access to said database to subscribers at remote locations.

23. A ground-based cellular telephone system as recited in claim 22, further comprising means for providing location data to a specific one of said cellular telephones upon request by the specific telephone.

24. A ground-based cellular telephone system as recited in claim 22, further comprising means for merging said location data with billing data for said cellular telephones and generating modified billing data, wherein said billing data indicates the cost for each telephone call made by said cellular telephones within a certain time period, said cost being based upon one or more predetermined billing rates, and said modified billing data is based upon a different rate for calls made from one or more prescribed locations.

25. A ground-based cellular telephone system as recited in claim 22, further comprising means for transmitting a signal to a selected cellular telephone to cause said selected telephone to transmit a signal over a control channel.

47

26. A ground-based cellular telephone system as recited in claim 22, further comprising means for automatically sending location information to a prescribed receiving station in response to receiving a distress signal from a cellular telephone, whereby emergency assistance may be provided to a subscriber in distress.

27. A ground-based cellular telephone system as recited in claim 22, further comprising means for comparing the current location of a given telephone with a prescribed range of locations and indicating an alarm condition when said current location is not within said prescribed range.

28. A ground-based cellular telephone system as recited in claim 22, further comprising means for detecting a lack of signal transmissions by a given telephone and in response thereto automatically paging said given telephone to cause said given telephone to initiate a signal transmission.

29. A ground-based cellular telephone system as recited in claim 22, further comprising means for estimating a time of arrival of a given telephone at a prespecified location.

30. A ground-based cellular telephone system as recited in claim 22, further comprising means for continuously tracking a given telephone by receiving voice signals transmitted by said given telephone over a voice channel and determining the location of said given telephone on the basis of said voice signals.

31. A method for determining the location(s) of one or more mobile cellular telephones periodically transmitting signals over one of a prescribed set of control channels, comprising the steps of:

(a) receiving said signals at at least three geographically-separated cell sites;

(b) processing said signals at each cell site to produce frames of data, each frame comprising a prescribed number of data bits and time stamp bits, said time stamp bits representing the time at which said frames were produced at each cell site;

(c) processing said frames of data to identify individual cellular telephone signals and the differences in times of arrival of said cellular telephone signals among said cell sites; and

(d) determining, on the basis of said times of arrival differences, the locations of the cellular telephones responsible for said cellular telephone signals.

32. A method as recited in claim 31, further comprising the steps of storing location data identifying the cellular telephones and their respective locations, and providing access to said database to subscribers at remote locations.

33. A method as recited in claim 31, further comprising merging said location data with billing data for said cellular telephones and generating modified billing data, wherein said billing data indicates the cost for each telephone call made by said cellular telephones within a certain time period, said cost being based upon one or more predetermined billing rates, and said modified billing data is based upon a different rate for calls made from one or more prescribed locations.

34. A method as recited in claim 31, further comprising transmitting a signal to a selected cellular telephone to cause said selected telephone to transmit a signal over a control channel.

35. A method as recited in claim 31, further comprising automatically sending location information to a prescribed receiving station in response to receiving a

Exhibit FF

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

TRUEPOSITION, INC.,

Plaintiff and Counterclaim-Defendant,

v.

ANDREW CORPORATION,

Defendant and Counterclaim Plaintiff.

Civil Action No. 05-00747-SLR

DECLARATION OF DR. DAVID J. GOODMAN IN SUPPORT OF ANDREW'S MOTIONS FOR SUMMARY JUDGMENT AND OPENING MARKMAN BRIEF

1. I, Dr. David J. Goodman, make this declaration upon personal knowledge, and if called to testify, could and would testify hereto.

2. I am currently a Program Director at the National Science Foundation in Arlington, Virginia on temporary assignment from my position as a professor of Electrical and Computer Engineering at Polytechnic University in Brooklyn, New York. Before joining the NSF, I was Director of the Wireless Internet Center for Advanced Technology (WICAT), located at Polytechnic University, Columbia University, and the University of Virginia. WICAT is a National Science Foundation Industry/University Cooperative Research Center. From August 1999 until August 2001, I was Head of the Department of Electrical and Computer Engineering at Polytechnic University.

3. Before joining Polytechnic University in 1999, I was a Professor of Electrical and Computer Engineering at Rutgers, the State University of New Jersey. From 1988 until 1991, I was Chairman of the Department of Electrical and Computer Engineering at Rutgers. In 1989, I founded the Wireless Information Network Laboratory (WINLAB) at Rutgers University. WINLAB was the first center of excellence at a United States university focused on cellular telecommunications. In 1991, WINLAB was designated the National Science Foundation Industry/University Cooperative Research Center for Wireless Information Networks. I was the Director of WINLAB until 1999, when I joined Polytechnic University.

4. From 1967 to 1988, I was at Bell Laboratories, where I held the position of Department Head in Communications Systems Research. In 1995, I was a Research Associate at the Program on Information Resources Policy at Harvard University. In

1997, I was Chairman of the National Research Council Committee studying "The Evolution of Untethered Communications."

5. I have extensive experience performing and managing research in telecommunications and digital signal processing. My research in cellular telecommunications has produced innovations covering multiple access protocols, network architecture, mobility management, and radio resources management. In 1986 and 1987, while I was employed by AT&T Bell Laboratories, I had a research assignment in the United Kingdom. As part of this assignment, I had detailed technical discussions with experts in several European countries who were participating in the establishment of the GSM cellular standard. At that time, I acquired a thorough understanding of GSM technology, and I have maintained this expertise ever since through technical discussions, participation in various forums, and in the conduct of my teaching, research, and writing.

6. I was one of the first professors to teach a college-level course in cellular telecommunications and have taught such courses since January 1989. In the early 1990's, I also presented a three-day short course at many large companies including Bell Atlantic Mobile, Pacific Bell, US West, Ericsson and AT&T. This course introduced corporate students to the operations of several cellular systems including AMPS, TDMA, and GSM. I have lectured and published widely on the subject of cellular telecommunications. My publications include approximately 100 papers. I have also consulted for many corporations in this field, including: Ericsson, Motorola, Lucent Technologies, and Nortel Networks.

7. I received a Bachelor's degree at Rensselaer Polytechnic Institute in 1960, a Master's degree at New York University in 1962, and a Ph.D. at Imperial College, University of London in 1967, all in electrical engineering.

8. I am a Member of the National Academy of Engineering, a Foreign Member of The Royal Academy of Engineering, a Fellow of the Institute of Electrical and Electronics Engineers, and a Fellow of the Institution of Electrical Engineers.

9. In 1997, I received the ACM/SIGMOBILE Award for "Outstanding Contributions to Research on Mobility of Systems Users, Data, and Computing." In 1999, I won the RCR Gold Award for the best presentation at the Conference on Third Generation Wireless Communications. In 2003, I received an IEEE Avant Garde Award for Contributions to Speech Coding and Internet-Packet Cellular Networks. Three of my papers on wireless communications have been cited as Paper of the Year by IEEE journals.

10. I am a frequent public speaker in a variety of forums on wireless communications. I am author of the books *Wireless Personal Communications Systems*, published in 1997 by Addison Wesley and co-author, with Roy Yates, of *Probability and Stochastic Processes A Friendly Introduction for Electrical and Computer Engineers, Second Edition*, published in 2004 by Wiley. I am co-editor of six other books on wireless communications. I am a named inventor on eight United States patents and have one patent application pending.

11. Based upon my experience in cellular technology as set forth above:

(a) Channel names are a shorthand and cannot be assumed to completely reflect each property of a channel.

(b) A "control channel" is not the same thing as a "voice channel."

(c) A control channel carries only "control" ("signaling") information.

(d) In contrast, a "voice channel" carries both "voice" ("traffic") information and "control" ("signaling") information.

(e) A "reverse control channel" is a term of art.

(f) A "reverse control channel" is a certain type of "control channel."

(g) A "forward control channel" is a different type of "control channel."

(h) Like streets -- some of which are one-way, and some of which are two-way -- channels have different directional properties. Some channels are "one-way" and can only transmit signals in either the forward or reverse direction, but not both. Some channels are "two-way" and can transmit signals in both directions.

(i) A "reverse control channel" is a "one-way" channel -- it can only carry signals from a mobile phone to a base station.

(j) A "forward control channel" is also a "one-way" channel -- it can only carry signals from a base station to a mobile phone.

(k) An SDCCH is a "two-way" channel -- it can carry signals both from a from a base station to a mobile phone and from a mobile phone to a base station.

(l) A "reverse control channel" is a "shared" channel; it has a many-to-one property in that many mobile phones are allocated to the same reverse control channel to communicate with the base station.

(m) In contrast, an SDCCH is a "dedicated" channel -- only one mobile station at a time can use the SDCCH to communicate with the base station.

I declare under penalty of perjury that to the best of my knowledge, the foregoing is true and correct.

David J. Goodman

Dr. David J. Goodman

A 279